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Assessing the Effects of Individual Augmentation on Navy Retention

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Assessing the Effects of Individual Augmentation on Navy Retention

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Eighth Annual Navy Workforce
Research and Analysis Conference

May 7, 2008

What is Individual Augmentation?

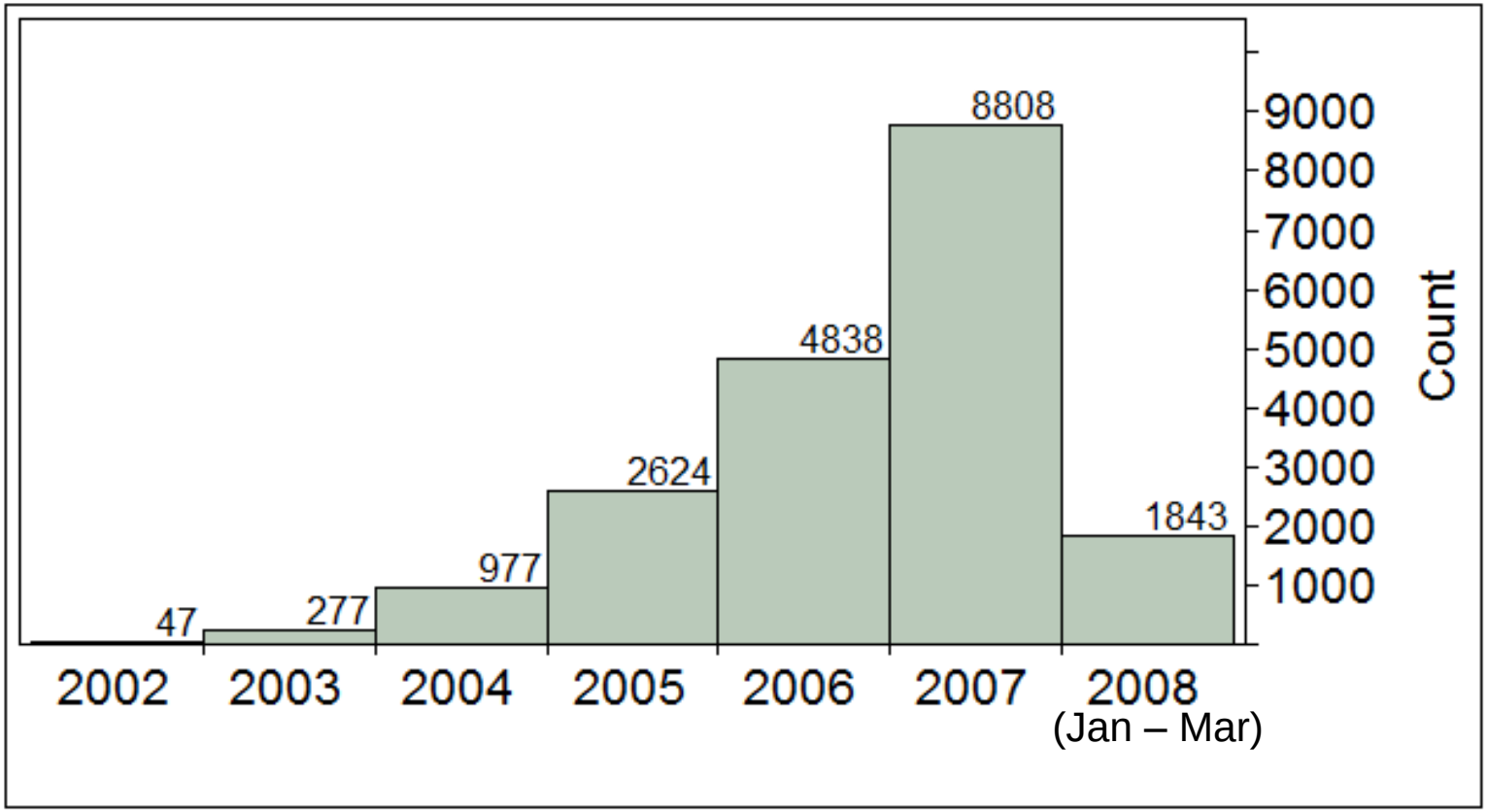
- Individual sailors and officers sent to augment other (often non-Navy) units
- Differs from usual deployments
  - Individual vice unit deployment
  - Often with little notice
- Then-CNO Admiral Mullen:

"*I see this as a long-term commitment by the Navy. I'm anxious to pitch in as much as we possibly can, for the duration of this war. Not only can we do our share, but [we can] take as much stress off those who are deploying back-to-back...*"[1]

1 "CNO to Sailors: IAs critical to War on Terror," Navy Newsstand, story number NNS070123-10, release date 1/23/2007 8:31:00 p.m. Accessed on-line at www.news.navy.mil/search/display.asp?story_id=27425 on 8 March 2007.

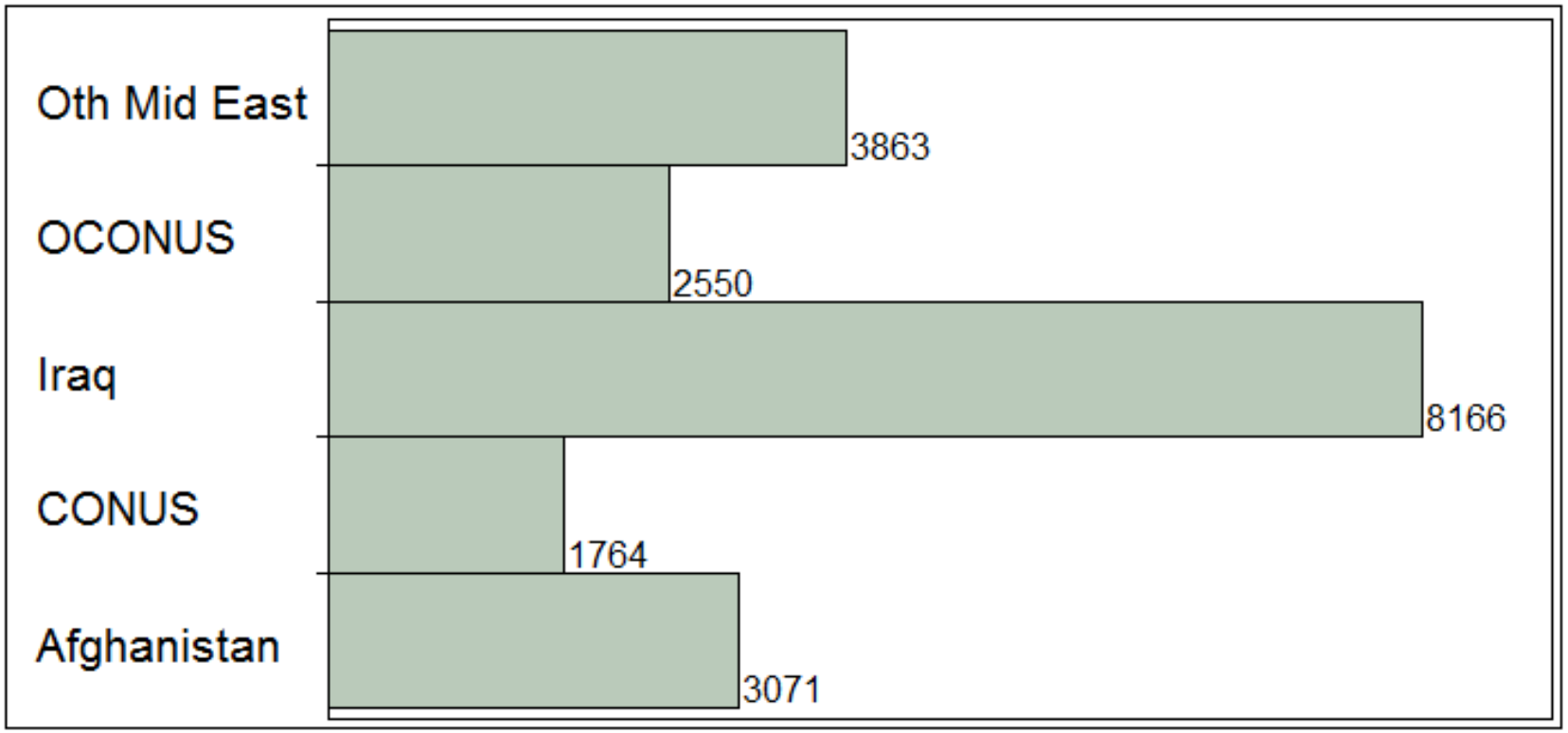
IA Deployments Increasing

Number Starting IA Deployment by Year
(Active Component Only)



Deployments Predominantly to Iraq, Afghanistan & the Middle East

Deployment Locations
(Active Component Only)



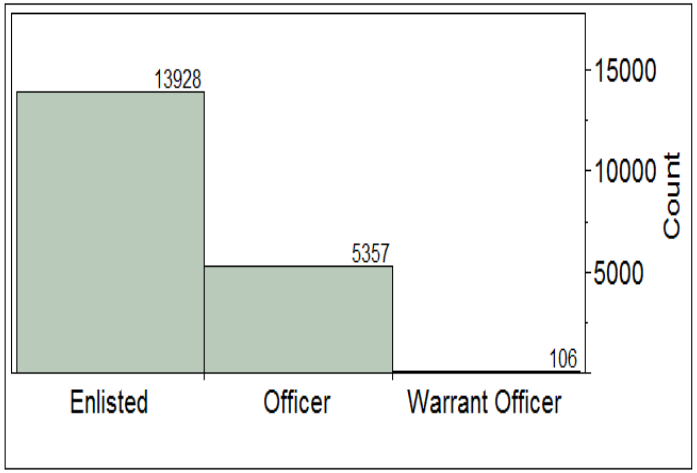
Research Question: Does IA Affect Navy Retention?

- With almost 20,000 AC sailors and Navy officers IA deployed in the past 6 years, Navy leadership interested in whether it's hurting retention
- RADM Masso, Deputy Chief of Naval Personnel:

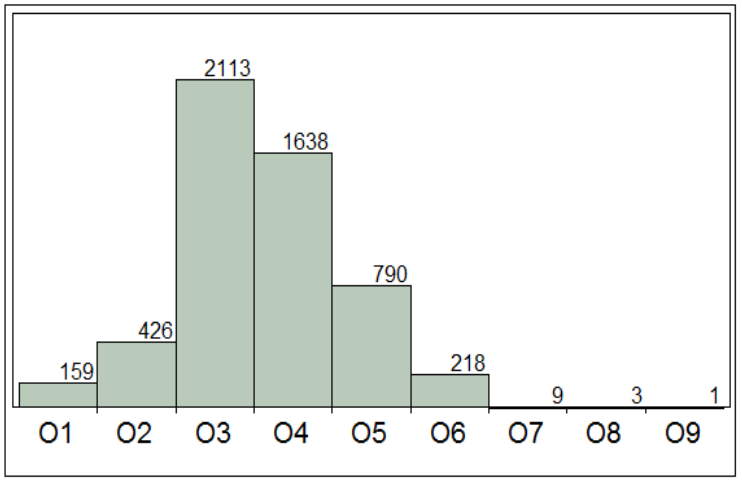
"Since 2002, 82 percent of our IA's have come from the Reserve component, yet I see letters of resignation from officers listing a fear of IA duty as being the reason they are getting out. IA duty affects two percent of the surface warfare officer (SWO) community, yet if you speak to a junior officer on the waterfront, you would think that half of their wardroom are IA's."[2]

2 "Masso Dispels IA Myths at Surface Navy Association Conference," Navy Newsstand, story number NNS070111-07, release date 1/11/2007 4:35:00 p.m. Accessed on-line at www.news.navy.mil/search/display.asp?story_id=27281 on 8 March 2007.

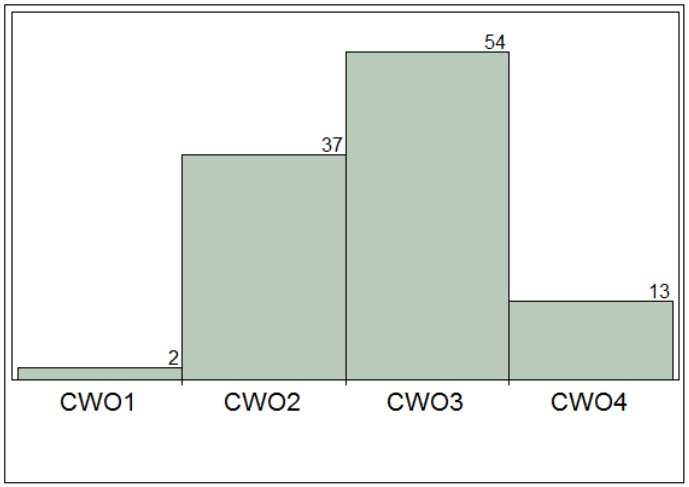
Almost 20,000 AC Navy Personnel IA Deployed Since March 2002



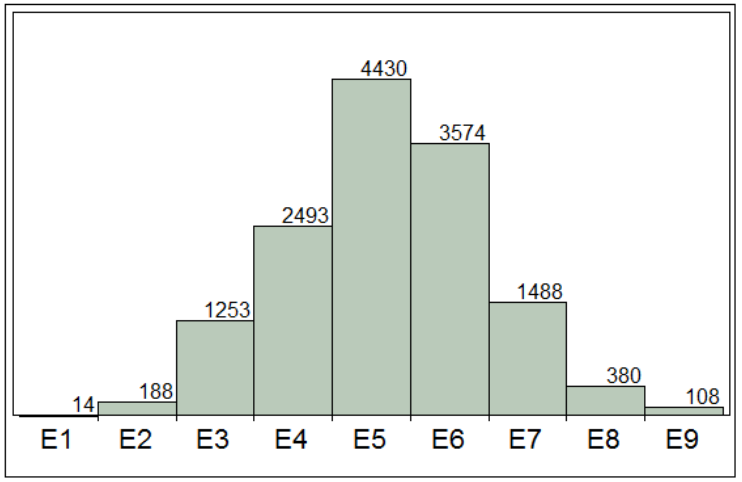
Officer vs. Enlisted



Officer Ranks



Warrant Officer Ranks



Enlisted Pay Grades

Previous Work on Deployment Effects

- From prior studies of effects of Perstempo:
  - Some deployment positively related to retention, too much can be negative
  - Hostile deployments generally positively related to retention
- See:
  - Hosek and Totten (1998, 2002) for enlisted personnel studies
  - Fricker (2001) for study of military officers

Modeling Effects of IA

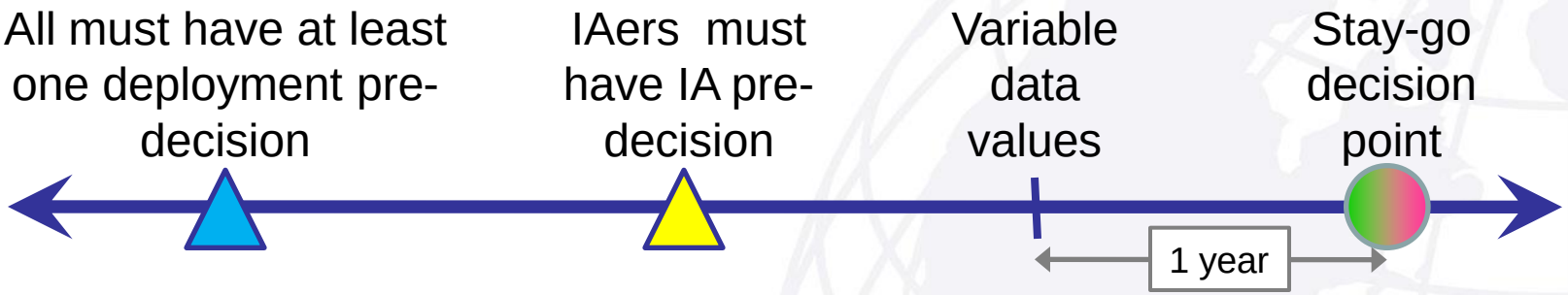
- Approach: Model individuals at their reenlistment decision point or end of initial service obligation
  - Compare between those that had an IA deployment prior to their decision versus those that did not
- Relevant cohort: those "at risk" of (1) an IA and (2) leaving the Navy
  - Also subset to only those with deployment experience
- "IAer:" An individual who made a stay-in/get-out decision after an IA deployment
  - If stay-in/get-out decision observed prior to IA, then individual was a "non-IAer" at that time

The Data

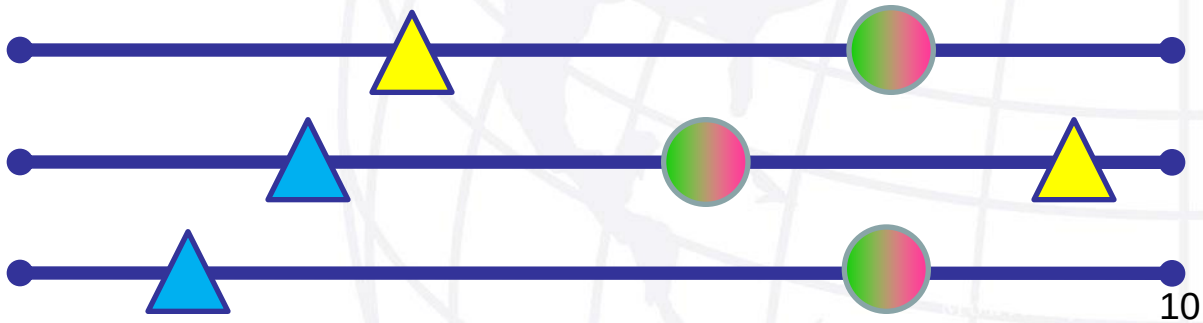
- IA data (OPNAV Pers-4)
  - Information on Navy personnel deployed as IAs
    - 21,340 records (Mar 02 – Mar 08 + future IAs)
  - Relevant fields
    - Identifiers: Name, rank, SSN
    - IA scheduling: Date deployed, est. BOG, est. return date
    - Other IA information: Location, billet title, UIC
- USN data (DMDC)
  - Information on all Navy personnel for past decade
    - 893,461 records (Oct 97 – Sept 07)
  - Relevant fields
    - Identifiers: Name, rank, SSN
    - Demographics: rate/designator, gender, race, family status
    - Deployment experience

Modeling the Decision Point: Stay In or Get Out of the Navy

- Model a binary decision point
  - Function of fixed (e.g., gender) and variable (e.g., family status) characteristics



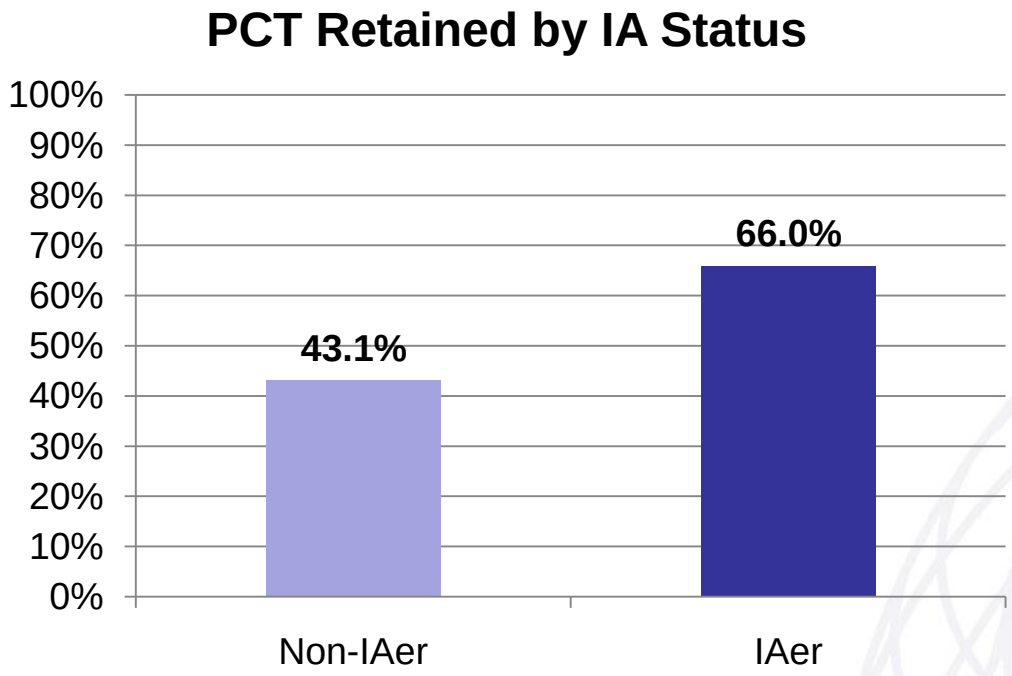
- Examples:
  - IAer:
  - Non-IAer:
  - Non-IAer:



Analytical Issues

- Analysis based on observational information from administrative datasets
- Can't identify volunteers versus non-volunteers
- Must (imperfectly) infer some critical data on decision points
  - Expiration of enlistment contract or end of initial service obligation period
  - Deployment experience

Junior Officer Results: Comparing Raw Rates



	IA Deployment?		
	No	Yes	
Left Navy	9,659	310	9,969
Retained	7,317	601	7,918
	16,976	911	17,887

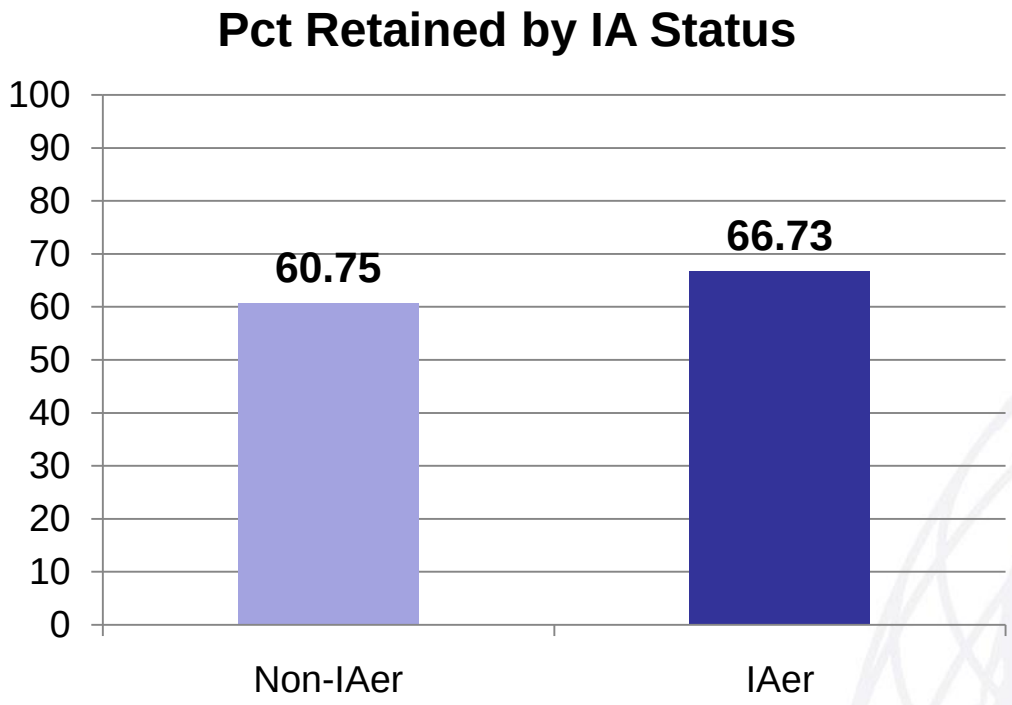
- Odds IAer retained = 1.94
- Odds non-IAer retained =0.76
- Odds ratio = 2.56
- "Statistically significant" result (p<0.0001)

Junior Officer Logistic Regression Model Results

	Log odds (β)	Std. error	t value
(Intercept)	-0.235	0.146	-1.61
Gender	-0.356	0.042	-8.47
White	0.286	0.119	2.39
Black	0.585	0.132	4.41
Hispanic	0.392	0.132	2.96
Indian	0.441	0.197	2.23
Asian	0.326	0.134	2.43
Other	0.549	0.208	2.64
Married	-0.176	0.077	-2.28
Single w/dep	-1.243	0.096	-12.98
Single w/o dep	-1.154	0.080	-14.39
DesigOther	0.235	0.046	5.14
DesigSub	0.171	0.072	2.36
DesigSupply	0.573	0.077	7.44
DesigSurface	0.231	0.052	4.47
IA	0.944	0.074	12.74

- Model for junior officers:
  - Coefficient for IA = 0.944, so adj. O.R. = 2.57
  - Virtually equivalent to raw O.R. = 2.56

Enlisted Personnel Results: Comparing Raw Rates



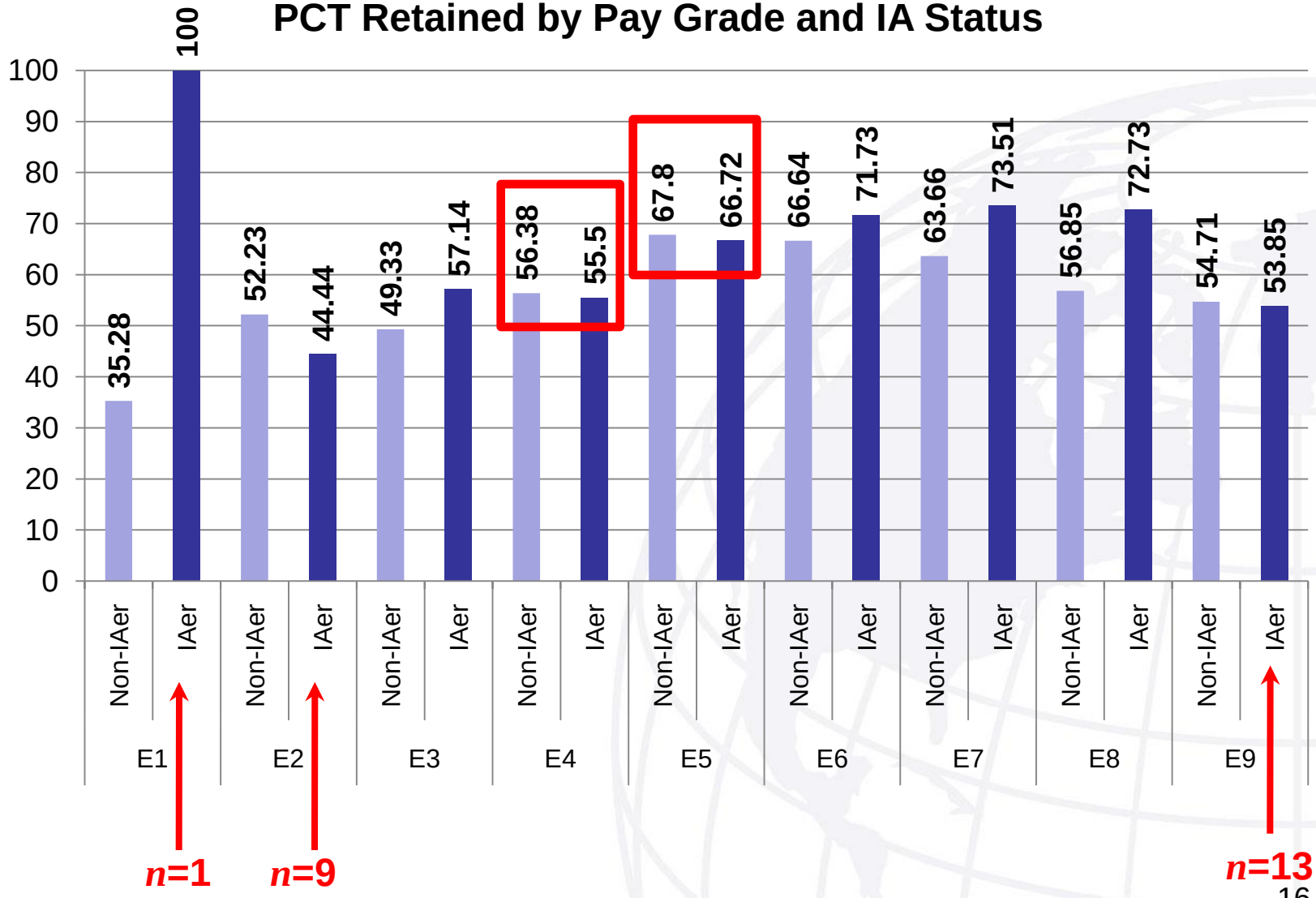
	IA Deployment?		
	No	Yes	
Left Navy	90,865	653	91,518
Retained	140,616	1,310	141,926
	231,481	1,963	233,444

- Odds IAer retained = 2.01
- Odds non-IAer retained = 1.55
- Odds ratio = 1.30
- "Statistically significant" result (p<0.0001)

Enlisted Personnel Logistic Regression Model Results

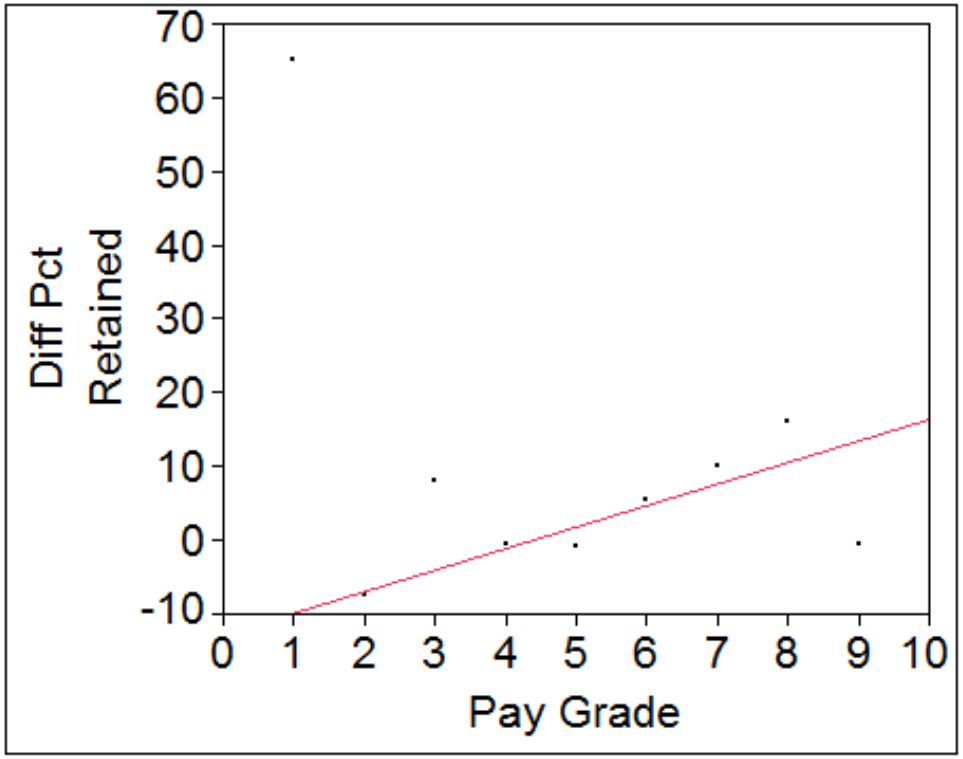
- Model controlled for pay grade, gender, race/ethnicity, family status, AFQT, education, and year of decision
- Model for all IAers:
  - Coefficient for IA_Deployer_Ind = 0.427, so adjusted O.R. = 1.53
- Model just Iraq and Afghanistan IAers:
  - Coefficient for IA_Deployer_Ind = 0.660, so adjusted O.R. = 1.93
- Remember raw O.R. = 1.30

Comparing Retention Rates by Pay Grade



Weighted Simple Linear Regression of Δ Pct Retained on Pay Grade

Pay Grade	Δ Percent Retained	Number IAs
E1	64.72	1
E2	-7.79	9
E3	7.81	56
E4	-0.88	373
E5	-1.08	604
E6	5.09	573
E7	9.85	268
E8	15.88	66
E9	-0.86	13



Δ Pct Retained = -12.8 + 2.9 * Pay Grade

Conclusions

- Thus far, IA deployment generally associated with higher retention rates
  - Consistent effects for both junior officers and enlisted personnel
    - Perhaps a paygrade effect for enlisted?
  - Self-selection and other effects present
    - Paygrade correlated with volunteer status?
- Thus far, hypothesis seemingly untrue: IA deployment *causes* significant decrease in propensity to stay in the Navy

Directions for Future Research (1)

- Repeat this effort annually to assess aggregate effects
  - Outcomes for most of those on or recently returned from IA not yet observed
    - E.g., only 1,963 IAd sailors out of 13,928 have made a stay-in/get-out decision as of 9/07
- Compare non-volunteers to rest of fleet to assess retention impacts on them
  - I.e., expect higher retention rate for volunteers
    - Masking a lower rate for non-volunteers, particularly with junior enlisted?

Directions for Future Research (2)

- Did not evaluate AC (1) mid-grade officers, (2) warrant officers, and (3) prior enlisted
  - Would not expect to find negative effects
  - Regardless:
    - Need more time to pass to evaluate (1)
    - And (2) and (3) are smaller populations
- Should assess IA effects for reservists
  - No reason to believe results for AC personnel apply/translate to reservists

Directions for Future Research (3)

- Once enough data available, evaluate whether IA sailors have higher rates of involuntary separation
- Collect pre- and post-deployment attitudinal data via a survey
  - How does IA experience affect propensity to reenlist/stay in the Navy?
  - NPRST working this?
- Link survey attitudinal data to outcome data: do attitudes translate into actions?